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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
AGGARWAL, YOGESH K	
ART UNIT	**PAPER NUMBER**
2615	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/672,987	PINE, JOSHUA I.	
	Examiner	Art Unit	
	Yogesh K. Aggarwal	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5,6,9,10,14,17,19-21 and 24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5,6,9,10,14,17,19-21 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments filed 04/04/2005 have been fully considered but they are not persuasive.

Examiner's response:

2. Applicant argues with respect to claims 5, 14 and 24 that the endoscope does not operate "without incident light" (Amendment, pp 7). The Examiner respectfully disagrees. Figure 2 shows a light source 30 used to illuminate the tissue 42 and the reflected light is incident upon the CCD cameras 34 and 36 (col. 5 lines 50-54). Palcic et al. further teaches that this incident light from the tissue is detected as tissue fluorescence as an incident light condition ("light falling upon the CCD" or incident upon the CCD) and if a tissue image is at low florescent light conditions the light sensitivity can be increased to acquire low-resolution image (col. 4 lines 6-11).

3. Applicant argues with respect to claims 6 and 17 that Examiner must provide documentary evidence for the Official Notice that "if a low power condition is detected, part of the circuit can be made off in order to reduce the power consumption thereby saving battery" in the next office action if rejection is to be maintained (Amendment, pp 8 and 9). Anderson et al. (US Patent # 6,233,016) teaches a system and method for managing utilization of a battery and a voltage sensor 76 (figure 3) for monitoring the power source's 74 voltage (col. 5 lines 64-66). Upon detecting that the power source voltage has fallen below a predetermined threshold, the voltage sensor 76 generates a signal to the PMH 70. Upon receiving the signal from the voltage sensor 76 the PMH 70 immediately commands the flash unit 66 to no longer consume any power (col. 5 line 67-col. 6 line 31). Therefore Anderson teaches the claimed limitation "where the

image processor detects whether there is a low power condition" and hence the Official Notice that "if a low power condition is detected, part of the circuit can be made off in order to reduce the power consumption thereby saving battery".

4. Applicant further argues that the Official Notice does not teach the claimed limitation "where the image processor detects whether there is a low power condition, and if so, captures the image using the low-resolution mode of the circuit" (Amendment, pp 9). The Examiner respectfully disagrees. Anderson '016 reference was only used for teaching the claimed limitation "where the image processor detects whether there is a low power condition". The claimed limitation "and if so, captures the image using the low-resolution mode of the circuit" is being taught by Kuroiwa reference which teaches that the reduction in resolution is achieved as a result of sub-sampling in order to make it easy to reduce the power consumption (Paragraph 188). Therefore the claimed limitation "where the image processor detects whether there is a low power condition" is taught by Anderson and "and if so, captures the image using the low-resolution mode of the circuit" is being taught by the Kuroiwa reference.

5. Applicant further argues that there is no motivation to modify the image sensor of Wilder et al. so that the image sensor of Wilder et al. detects "where the image processor detects whether there is a low power condition, and if so, captures the image using the low-resolution mode of the circuit" (Amendment pp 9 and 10). The Examiner respectfully disagrees. Anderson et al. '016 reference that in order to extend the life of the battery (col. 3 lines 33-53) by turning some circuits like the flash unit 66 to no longer consume any power (col. 5 line 67-col. 6 line 31) upon detecting by the voltage sensor 76 that the power source voltage has fallen below a predetermined threshold. Furthermore Kuroiwa also teaches that the reduction in resolution is

achieved as a result of sub-sampling in order to make it easy to reduce the power consumption (Paragraph 188).

6. Applicant further argues that Kuroiwa ahs been relied for the teaching or suggestion that low resolution images may be taken. This final combination of Wilder and Official Notice with Kuroiwa creates a quiescent device - a circuit that selects between the full-resolution and low-resolution modes that turns itself off upon detecting a low power condition. The Examiner has attempted to rely on Kuroiwa for the teaching or suggestion of a circuit which has turned itself off upon detecting a low power condition, and can still take low resolution images in the off state. Applicants traverse any finding of any such teaching or suggestion in Kuroiwa (Amendment, pp 11). The Examiner respectfully disagrees. Kuroiwa has been relied upon to teach the claimed limitation "and if so, captures the image using the low-resolution mode of the circuit" which teaches that the reduction in resolution is achieved as a result of sub-sampling in order to make it easy to reduce the power consumption (Paragraph 188). Therefore the claimed limitation "where the image processor detects whether there is a low power condition, and if so, captures the image using the low-resolution mode of the circuit" is being taught in combination of Anderson and Kuroiwa references.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 5, 14 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US Patent # 5,262,871) in view of Palcic et al. (US Patent # 5,827,190).

[Claim 5]

Wilder et al. teaches a selectable resolution image capture system (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10) having a plurality of photocells that produce an analog electrical response to light exposure (col. 5 lines 25-31), a circuit (18) that converts the electrical responses of the plurality of photocells into digital signals (col. 1 line 14-20), the circuit having a full-resolution mode and a low-resolution mode and an image processor (18) that operates the circuit and selects between the full-resolution and low-resolution modes of the circuit to capture an image (col. 5 line 66- col. 6 line 64) except the image processor detecting a low light condition, and if so, captures the image using the low-resolution mode of the circuit.

Wilder et al. does not explicitly teach detecting a low incident light condition, and if so, capturing the image using the low-resolution mode of the circuit.

However Palcic et al. teaches in figure 2 a light source 30 used to illuminate the tissue 42 and the reflected light is incident upon the CCD to the optical means in the form of CCD cameras 34 and 36 (col. 5 lines 50-54). Palcic et al. further teaches that this incident light from the tissue is detected as tissue fluorescence as an incident light condition ("light falling upon the CCD" or incident upon the CCD) and if a tissue image is at low florescent light conditions the light sensitivity can be increased to acquire low-resolution image (col. 4 lines 6-11).

Therefore taking the combined teachings of Wilder and Palcic, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to incorporate detecting a low light condition, and if so, capturing the image using the

low-resolution mode of the circuit as taught by Palcic into the multiple resolution circuit of Wilder. The benefit of doing so will increase the sensitivity of the image sensor as two or more pixels are combined to generate more light per pixel as taught in Palcic (col. 4 lines 8-11).

[Claim 14]

Wilder et al. teaches a method of capturing an image comprising selecting between a low-resolution and a high-resolution mode (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10); exposing an array of photocells that produce electrical charges in response to light exposure (col. 5 lines 25-31), if the high-resolution mode is selected, then converting each electrical charge into a digital signal to produce a high-resolution image else (col. 1 lines 8-26), combines the electrical responses of more than one element per column and more than one row at a time (e.g. P column conductors and Q row conductors) where P and Q may be programmed to group comprising at least two photocells together by separating the array of photocells into discrete groups and converting each group of into a corresponding digital signal, to produce a low-resolution image (col. 6 lines 30-39) except detecting a low light condition, and if so, capturing the image using the low-resolution mode of the circuit.

Wilder et al. does not explicitly teach detecting a low light condition, and if so, capturing the image using the low-resolution mode of the circuit.

However Palcic et al. teaches in figure 2 a light source 30 used to illuminate the tissue 42 and the reflected light is incident upon the CCD to the optical means in the form of CCD cameras 34 and 36 (col. 5 lines 50-54). Palcic et al. further teaches that this incident light from the tissue is detected as tissue fluorescence as an incident light condition ("light falling upon the

CCD" or incident upon the CCD) and if a tissue image is at low florescent light conditions the light sensitivity can be increased to acquire low-resolution image (col. 4 lines 6-11).

Therefore taking the combined teachings of Wilder and Palcic, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to incorporate detecting a low light condition, and if so, capturing the image using the low-resolution mode of the circuit as taught by Palcic into the multiple resolution circuit of Wilder. The benefit of doing so will increase the sensitivity of the image sensor as two or more pixels are combined to generate more light per pixel as taught in Palcic (col. 4 lines 8-11).

[Claim 24]

Wilder et al. teaches a selectable resolution image capture system (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10) having a plurality of photocells that produce an analog electrical response to light exposure (col. 5 lines 25-31), a high-resolution mode for converting each electrical charge produced by the plurality of photocells into corresponding digital signals to produce a full-resolution image (col. 1 lines 8-26), a low-resolution mode for combining the electrical responses of more than one element per column and more than one row at a time (e.g. P column conductors and Q row conductors) where P and Q may be programmed to groups of at least two photocells together and converting each group of combined electrical responses into a corresponding digital signal, to produce a low-resolution image (col. 6 lines 30-39) except means for detecting lighting conditions and selecting the low-resolution mode if the lighting conditions disfavor the high-resolution mode.

However Palcic et al. teaches in figure 2 a light source 30 used to illuminate the tissue 42 and the reflected light is incident upon the CCD to the optical means in the form of CCD

cameras 34 and 36 (col. 5 lines 50-54). Palcic et al. further teaches that this incident light from the tissue is detected as tissue fluorescence as an incident light condition ("light falling upon the CCD" or incident upon the CCD) and if a tissue image is at low florescent light conditions the light sensitivity can be increased to acquire low-resolution image (col. 4 lines 6-11).

Therefore taking the combined teachings of Wilder and Palcic, it would have been obvious to one skilled in the art at the time of the invention to have been motivated to incorporate detecting a low light condition, and if so, capturing the image using the low-resolution mode of the circuit as taught by Palcic into the multiple resolution circuit of Wilder. The benefit of doing so will increase the sensitivity of the image sensor as two or more pixels are combined to generate more light per pixel as taught in Palcic (col. 4 lines 8-11).

9. Claims 6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US Patent # 5,262,871), Anderson et al. (US Patent # 6,233,016) and in further view of Kuroiwa (US PG-PUB # 2001/0017658).

[Claim 6]

Wilder et al. teaches a selectable resolution image capture system (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10) having a plurality of photocells that produce an analog electrical response to light exposure (col. 5 lines 25-31), a circuit (18) that converts the electrical responses of the plurality of photocells into digital signals (col. 1 line 14-20), the circuit having a full-resolution mode and a low-resolution mode and an image processor (18) that operates the circuit and selects between the full-resolution and low-resolution modes of the circuit to capture an image (col. 5 line 66- col. 6 line 64) except the image processor detecting a low power condition, and if so, captures the image using the low-resolution mode of the circuit.

Wilder et al. does not explicitly teach detecting a low power condition. However Anderson et al. (US Patent # 6,233,016) teaches a system and method for managing utilization of a battery and a voltage sensor 76 (figure 3) for monitoring the power source's 74 voltage (col. 5 lines 64-66). Upon detecting that the power source voltage has fallen below a predetermined threshold, the voltage sensor 76 generates a signal to the PMH 70. Upon receiving the signal from the voltage sensor 76 the PMH 70 immediately commands the flash unit 66 to no longer consume any power (col. 5 line 67-col. 6 line 31).

Wilder in view of Anderson teach that if a low power condition is detected, part of the circuitry can be made off but does not explicitly teach that during such condition low resolution image can be detected.

However Kuroiwa teaches that the reduction in resolution is achieved as a result of sub-sampling in order to make it easy to reduce the power consumption (Paragraph 188).

Therefore taking the combined teachings of Wilder, Anderson and Kuroiwa as a whole, it would have been obvious to one skilled in the art to incorporate an image processor which detects whether there is a low power condition as taught by Anderson, and if so, captures the image using the low-resolution mode of the circuit as taught by Kuroiwa into the multiple resolution circuit of Wilder. The benefit of doing so would save an excessive power to be consumed if low-resolution images are taken when low power condition is detected.

[Claim 17]

Wilder et al. teaches a method of capturing an image comprising selecting between a low-resolution and a high-resolution mode (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10); exposing an array of photocells that produce electrical charges in response to

light exposure (col. 5 lines 25-31), if the high-resolution mode is selected, then converting each electrical charge into a digital signal to produce a high-resolution image else (col. 1 lines 8-26), combines the electrical responses of more than one element per column and more than one row at a time (e.g. P column conductors and Q row conductors) where P and Q may be programmed to group comprising at least two photocells together by separating the array of photocells into discrete groups and converting each group of into a corresponding digital signal, to produce a low-resolution image (col. 6 lines 30-39) except detecting a low power condition, and if so, captures the image using the low-resolution mode of the circuit.

Wilder et al. does not explicitly teach detecting a low power condition. However Anderson et al. (US Patent # 6,233,016) teaches a system and method for managing utilization of a battery and a voltage sensor 76 (figure 3) for monitoring the power source's 74 voltage (col. 5 lines 64-66). Upon detecting that the power source voltage has fallen below a predetermined threshold, the voltage sensor 76 generates a signal to the PMH 70. Upon receiving the signal from the voltage sensor 76 the PMH 70 immediately commands the flash unit 66 to no longer consume any power (col. 5 line 67-col. 6 line 31).

Wilder in view of Anderson teach that if a low power condition is detected, part of the circuitry can be made off but does not explicitly teach that during such condition low resolution image can be detected.

However Kuroiwa teaches that the reduction in resolution is achieved as a result of sub-sampling in order to make it easy to reduce the power consumption (Paragraph 188).

Therefore taking the combined teachings of Wilder, Anderson and Kuroiwa as a whole, it would have been obvious to one skilled in the art to incorporate an image processor which

detects whether there is a low power condition as taught by Anderson, and if so, captures the image using the low-resolution mode of the circuit as taught by Kuroiwa into the multiple resolution circuit of Wilder. The benefit of doing so would save an excessive power to be consumed if low-resolution images are taken when low power condition is detected.

10. Claims 9, 10 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US Patent # 5,262,871) in view of Smith (US Patent # 5,418,565).

[Claim 19]

Wilder et al. teaches a method of capturing an image comprising selecting between a low-resolution and a high-resolution mode (col. 5 line 65-col. 6 line 7) comprising an imager (figure 2, element 10); exposing an array of photocells that produce electrical charges in response to light exposure (col. 5 lines 25-31), if the high-resolution mode is selected, then converting each electrical charge into a digital signal to produce a high-resolution image else (col. 1 lines 8-26), combines the electrical responses of more than one element per column and more than one row at a time (e.g. P column conductors and Q row conductors) where P and Q may be programmed to group comprising at least two photocells or four photocells together by separating the array of photocells into discrete groups and converting each group of into a corresponding digital signal, to produce a low-resolution image (col. 6 lines 30-39).

Although Wilder teaches generating low-resolution images by combining the electrical responses of more than one element per column and more than one row at a time by programming comprising at least two photocells or four photocells together by separating the array of photocells into discrete groups and converting each group of charges into a corresponding digital signal, to produce a low-resolution image (col. 6 lines 30-39), it fails to

explicitly teach that the imager is a color imager having a plurality of red, green, and blue photocells producing electrical responses to red, green and blue light respectively, separating the array of photocells into discrete photo-groups each having at least two same colored photocells combining the electrical charges of each group's photocells together, the combined electrical charges excluding any contribution from any differently colored photocell positioned at least partly positioned between the same colored photocells.

However Smith teaches a plurality of red, green, and blue photocells producing electrical responses to red, green and blue light respectively (figure 7), separating the array of photocells into discrete photo-groups having at least two same colored photocells (figure 6 shows at least two same-colored photocells i.e. red, blue or green being grouped to generate a low-resolution image. Four same colored photocells are shown grouped together to form a low-resolution image) and the combined electrical charges do not have any contribution from any differently colored photocell positioned at least partly positioned between the same colored photocells (col. 6 lines 11-col. 7 line 5, figures 6-8) in order to provide a color image that maintains good luminance resolution, without introducing false color 'aliasing' artifacts.

Therefore taking the combined teachings of Wilder and Smith, it would have been obvious to one skilled in the art to have been motivated to incorporate a color imager having a plurality of red, green, and blue photocells producing electrical responses to red, green and blue light respectively, separating the array of photocells into discrete photo-groups each having at least two same colored photocells combining the electrical charges of each group's photocells together, the combined electrical charges excluding any contribution from any differently colored photocell positioned at least partly positioned between the same colored photocells into

the multi-resolution system of Wilder in order to provide a color image that maintains good luminance resolution, without introducing false color 'aliasing' artifacts as taught in Smith (col. 6 lines 25-30).

[Claims 9 and 10]

These are apparatus claims based upon the method claim 9. Therefore they have been analyzed and rejected based upon the method claim 9.

[Claim 20]

Smith discloses an array of photocells arranged in rows and columns with alternating patterns of red, green, red, green, and green, blue, green, blue (figure 7).

[Claim 21]

Smith discloses each group comprising four photocells together that are responsive to same color of light (figure 6).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K. Aggarwal whose telephone number is (571) 272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Groody can be reached on (571) 272-7950. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YKA
May 4, 2005

TUAN HO
PRIMARY EXAMINER